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## IMAGING FOR RESIDENTS

## Paratenonitis

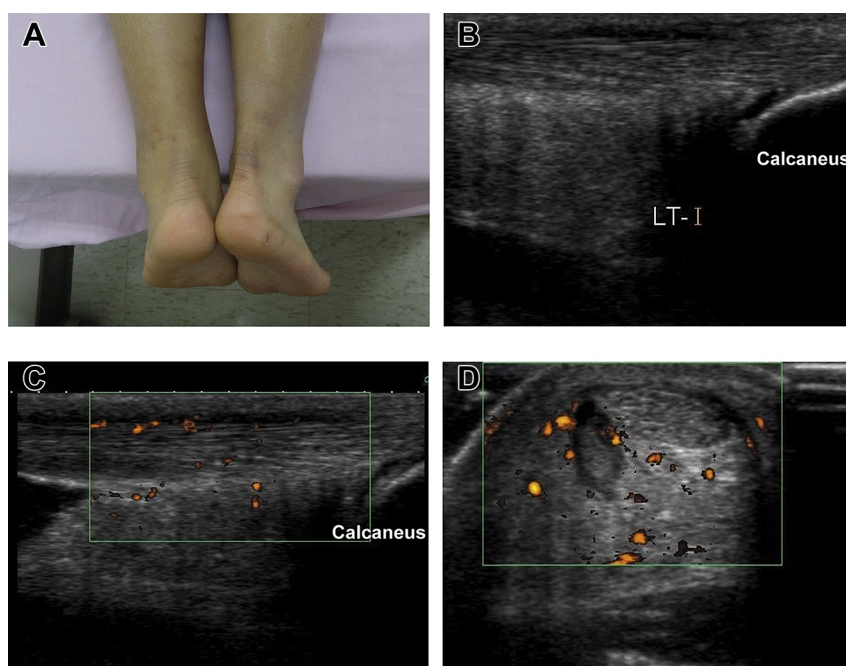
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## Case

A 16-year-old girl suffered from left heel pain for 1 week. She is used to playing badminton 1 hour per weekday and

jogging afterwards. The images shown in Fig. 1 are as follows: (A) both heels; (B) longitudinal view of the Achilles tendon under the greyscale ultrasonographic image; (C) longitudinal view of the Achilles tendon; and (D) transverse



**Fig. 1** (A) Swelling is observed at the area adjacent to her left heel cord. (B) The grayscale image shows a thickening of the paratenon but normal echogenicity and fiber arrangement of the left Achilles tendon. (C) Longitudinal view and (D) transverse views. The power Doppler image shows increased vascularity at the connective tissue surrounding the Achilles tendon but relatively normal vascularity inside the Achilles tendon. The findings are suggestive of Achilles paratenonitis rather than Achilles tendinitis.

Conflicts of interest: The authors declare no conflicts of interest.

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view of the Achilles tendon under the power Doppler ultrasonographic image.

## Interpretation

The Achilles tendon originates from the distal insertion of the gastrocnemius-soleus musculotendinous unit in the mid leg and is surrounded by a thin, gliding synovial membrane, the paratenon. [1,2] Paratenonitis or inflammation of the paratenon occurs when the tendon excessively rubs over the bony protuberance, resulting in inflammation and fluid accumulation next to the tendon. [3] Achilles paratenonitis commonly occurs in mature athletes involved in running and jumping activities. [4] The signs and symptoms of paratenonitis are pain and swelling at the posterior heel that is aggravated by activity and relieved by rest. Single-heel raise induces pain but the Thompson test appears negative. Significant heel cord contracture will exacerbate symptoms. [1,2] Under ultrasound, paratenonitis features swelling, edema, and increased echogenicity and hyperemia of the Achilles paratenon. [5] The goals of treatment are to relieve pain and to prevent progression to the chronic stage. Conservative treatment includes rest, correction of malalignment, and avoidance of predisposing factors such as poor flexibility or muscle imbalance, erroneous training

techniques, poor environment, or improper footwear. Cryotherapy and nonsteroidal anti-inflammatory drugs are useful for pain relief. Corticosteroid injection should be used with extreme caution. After the inflammation subsides, stretching and eccentric strengthening of the gastrocnemius-soleus muscles should be done [6].

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